International Journal of Medical Science Research and Practice
UNIT OF AXIS JOURNALS
International Peer Reviewed Medical Journal Committed for Excellence
Print ISSN: 2349-3178 Online ISSN: 2349-3186

Case Report

The role of ultrasonography in the diagnosis of hydrops fetalis: A case report

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ABSTRACT

The objective of this report was to show the role of ultrasonography in the diagnosis of hydrops fetalis. The sonographic assessment revealed that there was increased amniotic fluid with hyperplacentosis. The transonic fluid interface was noted in the fetal abdomen in keeping with fetal ascites. There was bilateral pleural effusion with obvious subcutaneous scalp edema and right scrotal hydrocele. Ultrasound imaging is very effective and adequate in the diagnosis of hydrops fetalis.

Keywords: Diagnosis, fetalis, hydrocele, hydrops, ultrasonography

INTRODUCTION

Hydrops fetalis has been defined as the presence of extracellular fluid in at least two fetal body compartments.[1,2]

The fluid collection may include the scalp, body wall edema, pericardial effusion, pleural effusion, and ascites.[1,3] Hydrops fetalis is described as the combination of edema and ascites.[2,4] Edema is the collection or accumulation of fluid in the skin whereas ascites is the accumulation of fluid within the peritoneal cavity of the abdomen.[4,5]

The normal fetal skin is barely resolved with ultrasound, appearing simply as a bright edge to the underlying organs.[4] Distention of the skin tissue in edema produces a characteristic ultrasound appearance that can be readily recognized.[4,6] Abnormal collection of fluid within the fetal body are also readily recognized because they produce a characteristic hypoechoic rim of varying depth which surrounds the heart, lung(s), and or abdominal organs.[4,7,8] The symptoms depends on the severity of the condition. Mild forms may cause hepatomegaly change in skin color (pallor), more severe forms may cause breathing problems, heart failure, severe anemia, and severe jaundice total body swelling.[9] Etiology includes hematological, cardiac, infective, metabolic, and neoplastic.[10]

CASE REPORT

A 20-year-old woman gravida 2 para 1+0 was referred from antenatal clinic to the radiology department for a routine ultrasound scan to assess fetal wellbeing. She is blood Group O and rhesus (Rh) negative while the husband is blood Group B and Rh incompatibility can be prevented if the positive. The scanning revealed an incidental finding of hydrops fetalis.

After explaining the scanning procedure to the patient, 3.5 mHz curvilinear probe was used to scan the patient. The machine model is ALOKA 2500. The ultrasound findings in a 20-year-old woman at 25 weeks gestational age revealed a single live intrauterine fetus which was seen in the longitudinal lie and presenting cephalic. The placenta was seen on the anterior body of the uterus and it was not low lying but thickened measuring 7.0 cm (70 mm) in its widest vertical dimension, no calcification was noted this finding was in keeping with hyperplacentosis. The amniotic fluid volume was increased and measured 13 cm (130 mm) in a single largest vertical pool. The hypoechoic fluid interface was noted in keeping with fetal ascites. There is bilateral pleural effusion with obvious scalp edema (Figures 1 and 2).

The right sided moderate hydrocele was noted. The fetal weight was not taken because it will give us spurious

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reading due to the presence of abdominal ascites (Figures 3 and 4). The fetal liver, gallbladder, kidneys, pancreas and spleen, spine, and the limbs were within sonographic normal limits. The spines and limbs were intact, and the cardiac activity was good. However, the patient subsequently had preterm delivery with low birth weight (1.8 kg) and poor Apgar scores. The baby died 3 weeks post-delivery.

DISCUSSION

Hydrops is divided into two groups namely: Immune and non-immune.[7] The immune hydrops is due to maternal antibodies while non-immune are the majority with varied causes. These conditions include that cause alterations in cardiac output, venous and lymphatic drainage, membrane permeability, structural abnormalities involving mediastinal compression such as skeletal dysplasia, cystic adenomatoid malformations, diaphragmatic hernias, and abnormalities causing cardiac compromise including tachyarrhythmias which are associated with hydrops. It is associated with trisomy 13, 18, and 21.[5,7,11,12] Turner's syndrome (45+0×) and triploidy, fetal anemia and infection are important causes.[9,12]

However, in cases of fetal hydrops it is important first to exclude a structural abnormality as the underlying causes.[12]

The fetal hydrops is often associated with polyhydramnios, leading to such maternal complications as supine hypotension syndrome, preterm labor and preterm premature rupture of the membranes. If placental hydrops is significant, an additional life-threatening complication called Ballantyne syndrome also known as Mirror syndrome, triple edema and pseudotoxemia has been described.[1,7]

The minor syndrome is described in association with immune hydrops, many subsequent case descriptions have been described in the literature secondary to non-immune hydrops fetalis due to a variety of etiologies.[9,11]

Prognosis depends on the underlying cause, although birth at <34 weeks of gestation and a serum albumin concentration level of <2 g/dl are generally features of poor prognosis.[12] Treatment for newborn may include direct transfusion of red blood cells that match the infant's blood type, removing extra fluid from around the lungs and belly area with a needle, medicines that control heart failure and helps the kidneys to remove extra fluids, methods to help the baby breathe.[8] Rh incompatibility can be prevented if the

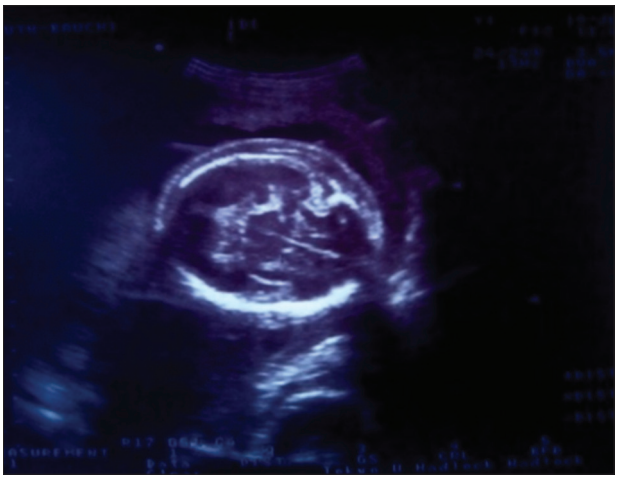

Figure 1: Scalp edema

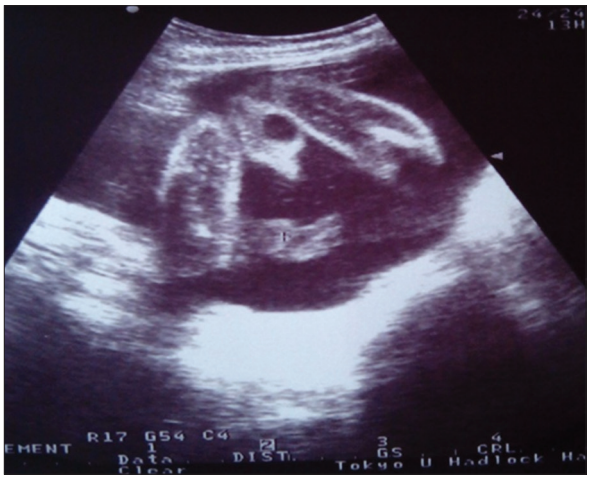

Figure 3: Right scrotal hydrocele

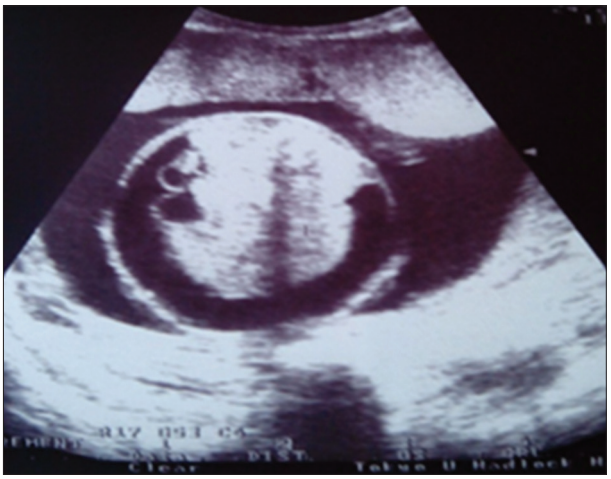

Figure 2: Hypoechoic fluid interphase abdominal ascites

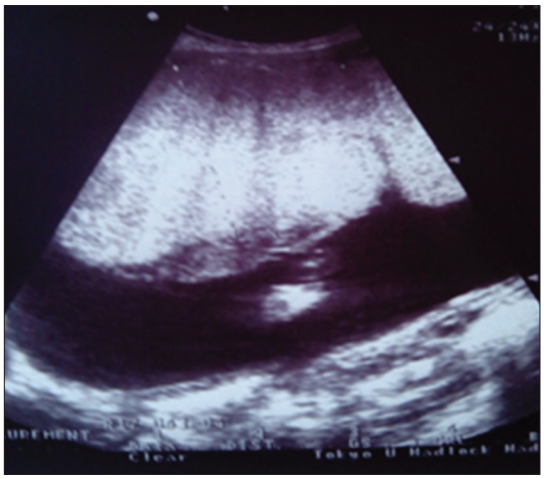

Figure 4: Polyhydramnios with hyperplacentosis

mother takes a medicine called RhoGAM during and after pregnancy.[10] Evaluation should include maternal history and pedigree, examinations such as fetal blood sampling and amniocentesis.[8]

CONCLUSION

Hydrops fetalis is a serious fetal disease with a grave prognosis. However, ultrasound imaging is essential and highly effective in diagnosing this condition as early detection is vital in post-natal management. The majority of cases remain problematic because there is no effective treatment and the perinatal mortality rate remains high especially in developing the world.

ACKNOWLEDGMENTS

Nil

PEER REVIEW

Double blinded externally peer reviewed.

CONFLICTS OF INTEREST

Nil

FUNDING

Nil

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How to cite this article: Joseph DZ, Igashi J, Joseph G, Aliyu L, Kadas S, Samuel S. The role of ultrasonography in the diagnosis of hydrops fetalis: A case report. Inter J Medical Sci Res Prac 2015;2(3):153-155.

Received: 06 Jun 2015; **Accepted:** 10 Jul 2015; **Published:** 30 Sep 2015